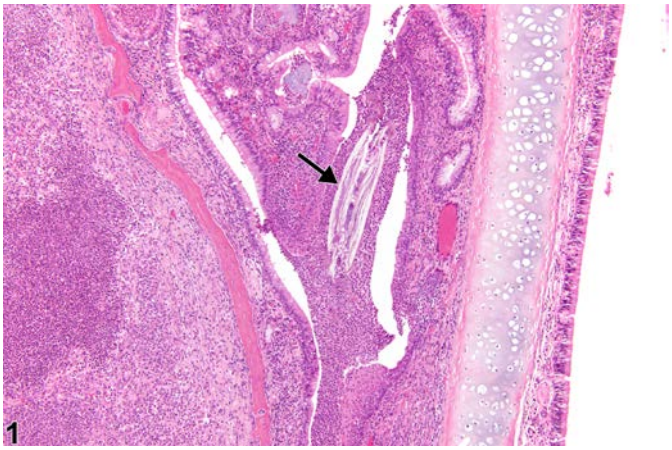
Nose – Inflammation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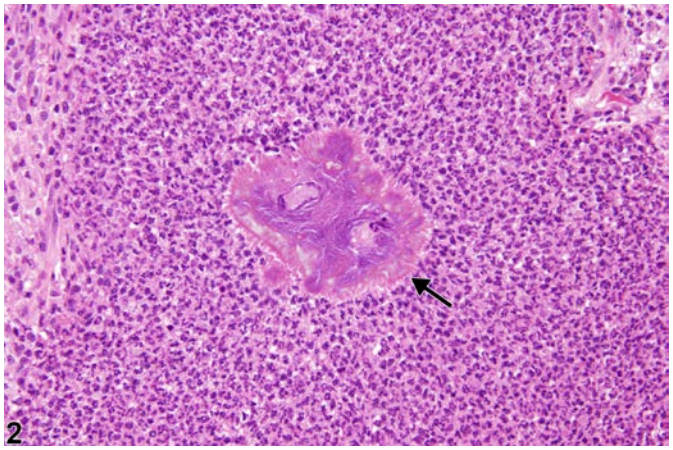
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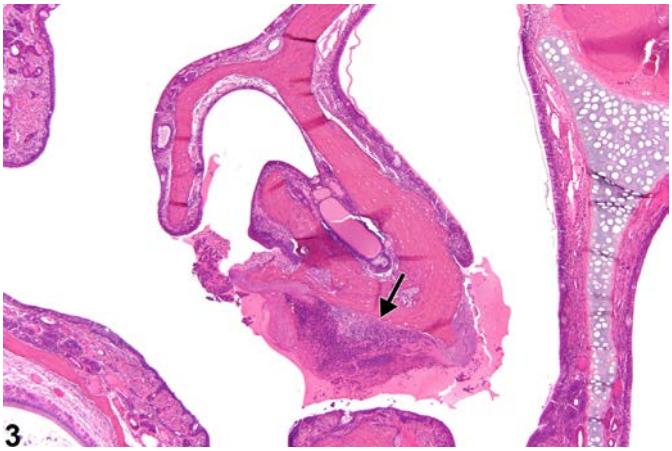
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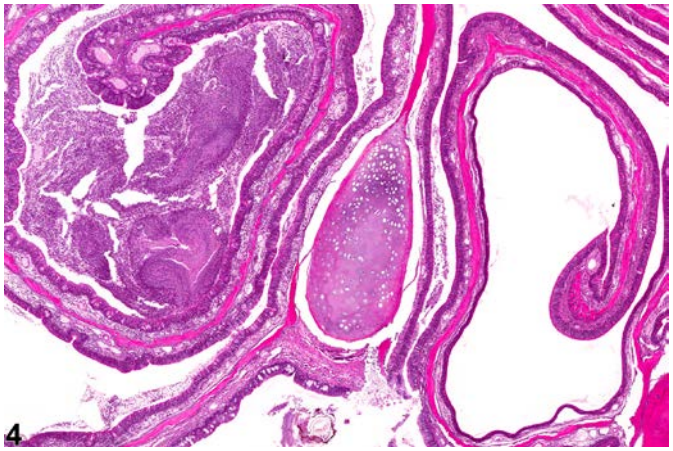
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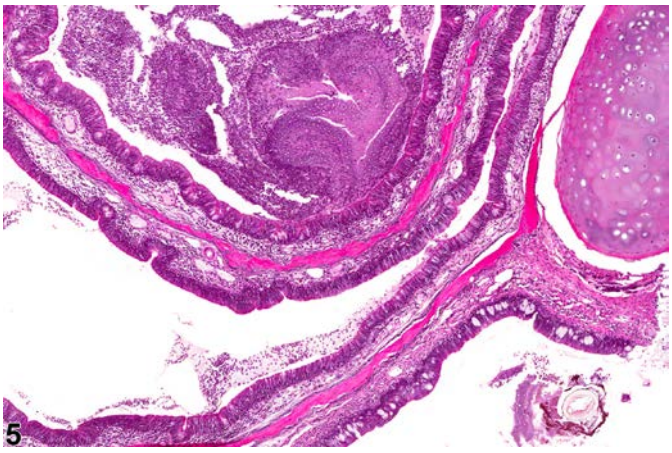
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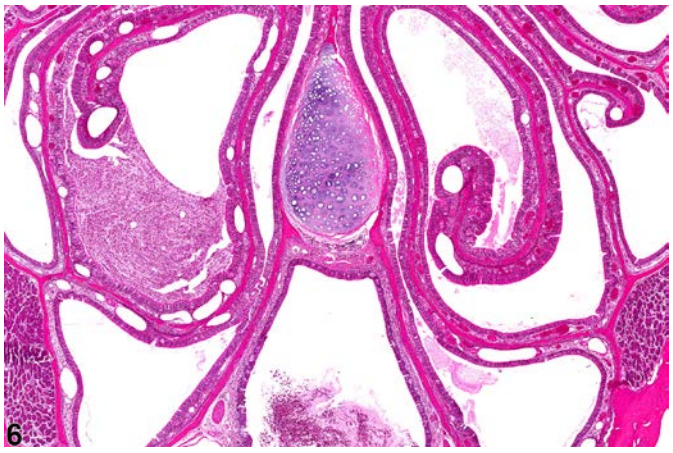
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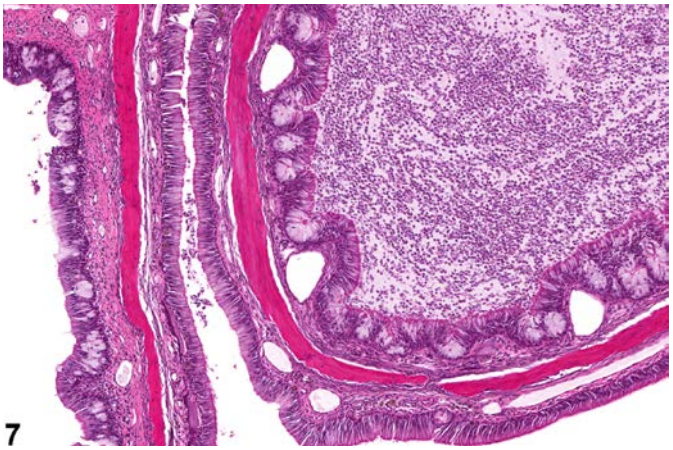
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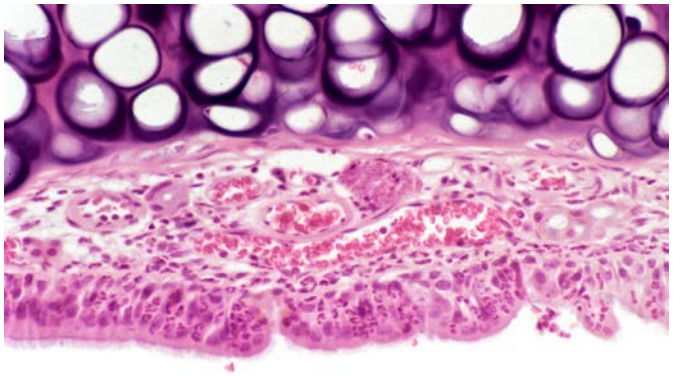
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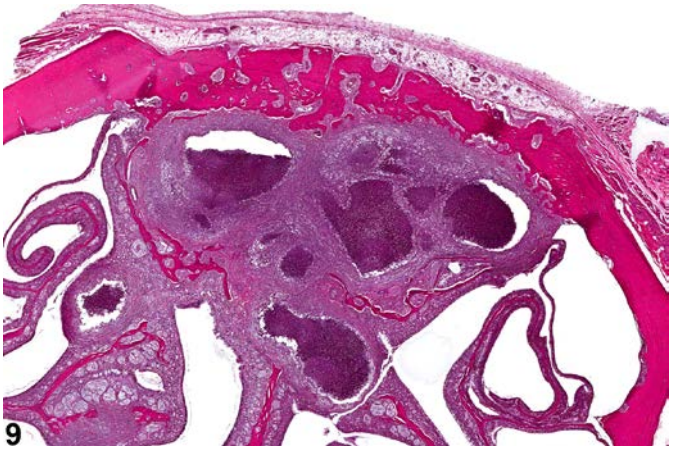
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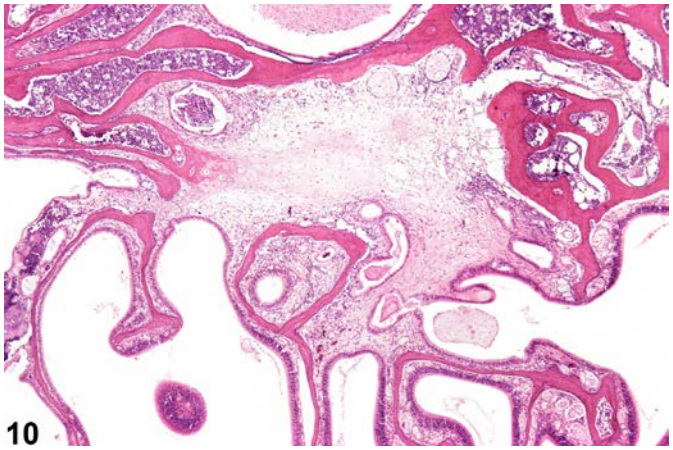
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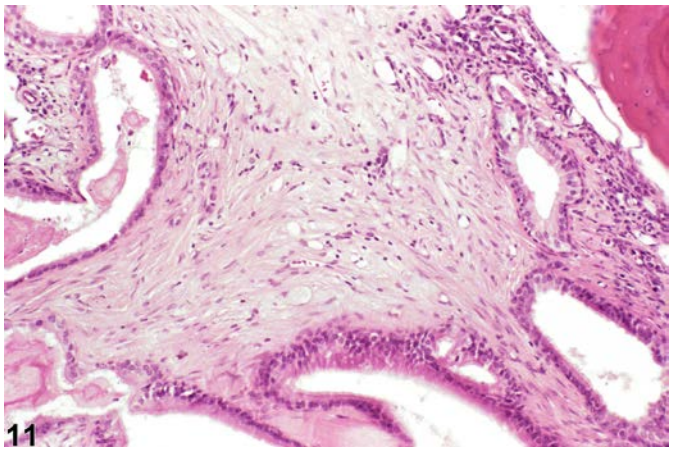
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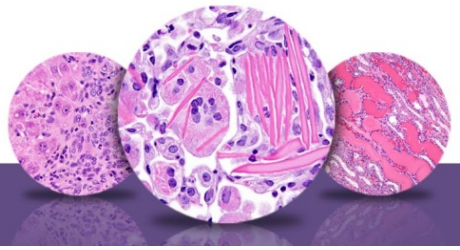

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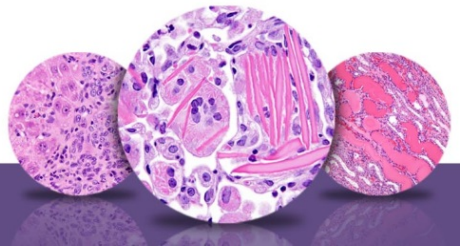
Figure Legend: **Figure 1** Nose, Respiratory epithelium - Inflammation, Suppurative in a male F344/N rat from a chronic study. This lesion is a unilateral, ventral, suppurative inflammatory cell response that contains a foreign body (arrow). **Figure 2** Nose, Respiratory epithelium - Inflammation, Suppurative in a male F344/N rat from a chronic study (higher magnification of Figure 1). Splendore-Hoeppli material (arrow) is present in the neutrophilic infiltrate. **Figure 3** Nose, Respiratory epithelium - Inflammation, Suppurative in a male F344/N rat from a chronic study. The suppurative inflammation in the ventral nasal cavity is associated with bone necrosis (arrow). **Figure 4** Nose, Olfactory epithelium - Inflammation, Suppurative in a female F344/N rat from a chronic study. There is a proliferative epithelial reaction to the suppurative inflammation in the ventral nasal cavity. **Figure 5** Nose, Olfactory epithelium - Inflammation, Suppurative in a female F344/N rat from a chronic study (higher magnification of Figure 4). Epithelial hyperplasia is associated with the suppurative inflammation in the ventral nasal cavity. **Figure 6** Nose, Olfactory epithelium - Inflammation, Suppurative, and Nose, Respiratory epithelium - Inflammation, Suppurative in a male F344/N rat from a chronic study. In addition to the suppurative reaction in the nasal cavity, the nasopharyngeal duct is also affected. **Figure 7** Nose, Olfactory epithelium - Inflammation, Suppurative in a male F344/N rat from a chronic study. A pronounced epithelial proliferative reaction is present secondary to the suppurative inflammation. **Figure 8** Nose, Respiratory epithelium - Inflammation, Acute in a male B6C3F1/N mouse from a chronic study. Neutrophils are present within the mucosal epithelium. **Figure 9** Nose, Olfactory epithelium - Inflammation, Suppurative in a male F344/N rat from a chronic study. This nest of abscesses is a category of suppurative inflammation in which the neutrophilic infiltrates are walled off by connective tissue. **Figure 10** Nose, Olfactory epithelium - Inflammation, Chronic in a male B6C3F1/N mouse from a chronic study. Chronic inflammation characterized by exuberant fibrosis is present in the posterior nasal cavity. **Figure 11** Nose, Olfactory epithelium - Inflammation, Chronic in a male B6C3F1/N mouse from a chronic study (higher magnification of Figure 10). Some inflammatory cells are associated with the fibrosis in the posterior nasal cavity.

Comment: In NTP studies, there are five standard categories of inflammation: acute, suppurative, chronic, chronic-active, and granulomatous. In *acute inflammation*, the predominant infiltrating cell is the neutrophil, though fewer macrophages and lymphocytes may also be present. There may also be evidence of edema or hyperemia. The neutrophil is also the predominant infiltrating cell type in *suppurative inflammation*, but the neutrophils are aggregated, and many of them are degenerate



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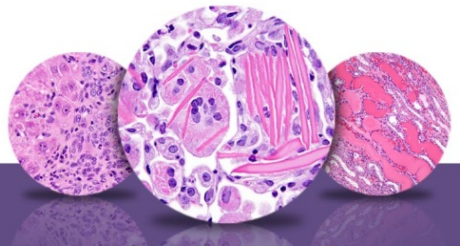
(suppurative exudate). Cell debris, from both the resident cell populations and infiltrating leukocytes; proteinaceous fluid containing fibrin, fewer macrophages, occasional lymphocytes or plasma cells; and, possibly, an infectious agent may also be present in within the exudate. Grossly, these lesions would be characterized by the presence of pus. The tissue surrounding the exudate may contain fibroblasts, fibrous connective tissue, and mixed inflammatory cells, depending on the chronicity of the lesion. Lymphocytes predominate in *chronic inflammation*. Lymphocytes also predominate in *chronic-active inflammation*, but there are also a significant number of neutrophils. Both lesions may contain macrophages. *Granulomatous inflammation* is another form of chronic inflammation, but this diagnosis requires the presence of a significant number of aggregated, large, activated macrophages, epithelioid macrophages, or multinucleated giant cells. Inflammation is differentiated from cellular infiltrates by the presence of other changes, such as edema, hemorrhage, degeneration, necrosis, or other evidence of tissue damage.

Nasal inflammation is frequently seen in conjunction with other lesions, such as necrosis, hyperplasia, metaplasia, or atrophy of the adjacent epithelium. Other associated lesions that may be causative, such as a foreign body (Figure 1) or bone necrosis in the turbinates (Figure 3) may also be seen. Reflux-induced nasal lesions need to be considered when the observed nasal lesions fit a suggestive pattern (e.g., as shown in Figure 4, Figure 5, Figure 6, and Figure 7). Reflux-related lesions tend to be more severe ventrally and laterally in the nasal cavity, less pronounced in the dorsal medial sections of the nose, and more severe in the posterior nasal sections, with severity tapered off in the anterior nasal sections. Reflux-induced nasal lesions may have a unilateral predominance.

Recommendation: Inflammation of the nose should be diagnosed and graded when it is a primary lesion. If the inflammation is considered to be secondary to another process (e.g., necrosis) throughout the study, then the inflammation should not be diagnosed separately but should be described in the narrative as a component of the primary lesion, unless the inflammation is severe enough to warrant a separate diagnosis or is disproportionately severe compared to the primary lesion. The diagnosis of inflammation should include the type of inflammation (acute, chronic, etc.) as a modifier, and the location of the lesion within the nasal cavity as a site modifier (e.g., respiratory epithelium, olfactory epithelium, nasopharyngeal duct, vomeronasal organ). If multiple sites are affected, the diagnoses should be separated by type of epithelium affected (i.e., squamous, transitional, respiratory, or



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olfactory), but inflammation of concurrently affected sites, such as the nasolacrimal ducts or the vomeronasal organ, may be described in the pathology narrative. The pathology narrative should describe the features of the inflammation, presence of serous, fibrinous, or mucous fluid within the nasal cavity, and note associated lesions. Osseous and cartilaginous changes, as well as synechia, if present, should be diagnosed separately. If there is an infectious agent, such as fungus, or a foreign body associated with the lesion, it should also be diagnosed separately (except for bacteria, which should not be diagnosed separately but should be described in the narrative).

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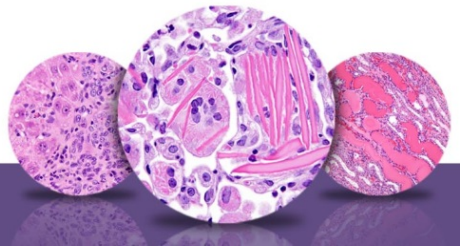

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